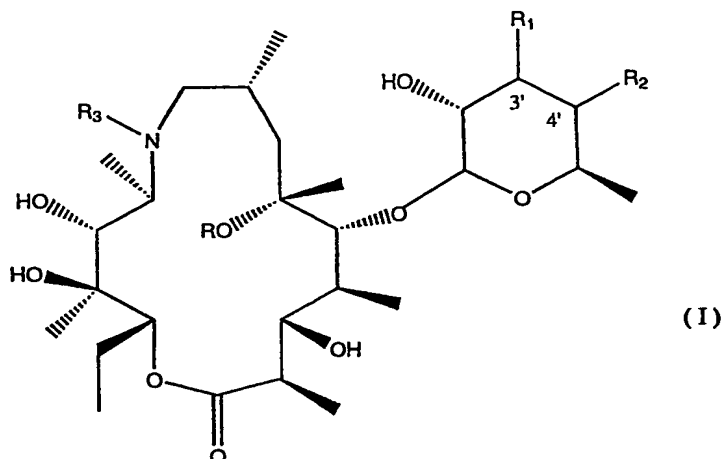


Claims

1) A compound of formula



5

in which

R is a hydrogen atom or a methyl

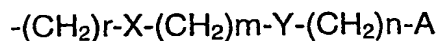
R<sub>1</sub> is a hydrogen atom, an N,N-di-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino group, an N,N-di-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino-N-oxide group, an N-(C<sub>1</sub>-C<sub>4</sub>)-acyl-N-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino group or together with R<sub>2</sub> forms a bond between the carbon atoms at 3' and 4';

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R<sub>2</sub> is a hydrogen atom or together with R<sub>1</sub> forms a bond between the carbon atoms at 3' and 4';

15

R<sub>3</sub> is a linear or branched C<sub>1</sub>-C<sub>5</sub> alkyl, a benzyl optionally substituted with one or two substituents selected from nitro, hydroxy, carboxy, amino, linear or branched C<sub>1</sub>-C<sub>5</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy groups, C<sub>1</sub>-C<sub>4</sub> alkoxy carbonyl groups, aminocarbonyl groups or cyano or a chain of formula



in which

20

A is a hydrogen atom, a phenyl or a heteroaryl with five or six

members containing from one to three atoms selected from nitrogen, oxygen and sulfur;

X represents O, S, SO, SO<sub>2</sub>, NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom, a linear or branched C<sub>1</sub>-C<sub>3</sub> alkyl, a C<sub>1</sub>-C<sub>3</sub> alkoxy carbonyl group, a benzyloxycarbonyl group;

Y is a C<sub>6</sub>H<sub>4</sub> group, a heteroaryl with five or six members containing from one to three atoms selected from nitrogen, oxygen and sulfur or represents O, S, SO, SO<sub>2</sub>, NR<sub>6</sub> where R<sub>6</sub> has the meanings given above;

r is an integer of from 1 to 3;

m is an integer of from 1 to 6;

n is an integer of from 0 to 2;

moreover the nitrogen atom to which R<sub>3</sub> is bound can be present in the N-oxide form;

and their pharmaceutically acceptable salts;

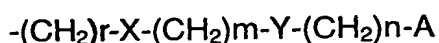
provided that when R is a hydrogen atom and R<sub>1</sub> is a dimethylamino group, R<sub>3</sub> is different from a (C<sub>1</sub>-C<sub>5</sub>)-alkyl group.

2) A compound according to claim 1 in which R<sub>1</sub> is a hydrogen atom, an N-methyl-N-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino group, an N-methyl-N-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino-N-oxide group, an N-(C<sub>1</sub>-C<sub>4</sub>)-acyl-N-methylamino group or R<sub>1</sub> together with R<sub>2</sub> forms a bond between the carbon atoms at 3' and 4'.

3) A compound according to claim 2 in which R<sub>1</sub> is a hydrogen atom, an N,N-dimethylamino group, an N,N-dimethylamino-N-oxide group, an N-acetyl-N-methylamino group or R<sub>1</sub> together with R<sub>2</sub> forms a bond between the carbon atoms at 3' and 4'.

4) A compound according to claim 1 in which R<sub>3</sub> is a linear or branched (C<sub>1</sub>-C<sub>3</sub>) alkyl, a benzyl optionally substituted with one or two substituents selected from nitro, hydroxy, carboxy, amino, linear or branched (C<sub>1</sub>-C<sub>3</sub>) alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy and cyano groups or

a chain of formula



in which

5 A is a hydrogen atom, a phenyl or a heteroaryl with five or six members containing from one to three atoms selected from nitrogen, oxygen and sulfur;

X is O or  $\text{NR}_6$  and  $\text{R}_6$  is a hydrogen atom, a linear or branched  $\text{C}_1\text{-C}_3$  alkyl;

10 Y, when n is 0, is a  $\text{C}_6\text{H}_4$  group or a heteroaryl with five or six members containing from one to three atoms selected from nitrogen, oxygen and sulfur; or, when n is different from 0, it is O or  $\text{NR}_6$  and  $\text{R}_6$  is a hydrogen atom, a linear or branched  $\text{C}_1\text{-C}_3$  alkyl;

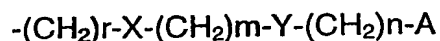
r is an integer of from 1 to 3;

15 m is an integer selected from 1 and 2;

n is an integer of from 0 to 2;

moreover the nitrogen atom to which  $\text{R}_3$  is bound can be present in the N-oxide form.

20 5) A compound according to claim 4 in which  $\text{R}_3$  is a methyl, a benzyl or a chain of formula



in which

25 A is a hydrogen atom, a phenyl or a heteroaryl with five or six members selected from pyrrole, thiophene, furan, imidazole, oxazole, thiazole, pyridine, pyrimidine, triazole and thiadiazole;

X is O or  $\text{NR}_6$  and  $\text{R}_6$  is a hydrogen atom;

30 Y, when n is 0, is a  $\text{C}_6\text{H}_4$  group or a heteroaryl with five or six members selected from pyrrole, thiophene, furan, imidazole, oxazole, thiazole, pyridine, pyrimidine, triazole and thiadiazole; or, when n is 1, it is  $\text{NR}_6$  and  $\text{R}_6$  is a hydrogen atom;

r is an integer of from 1 to 3;

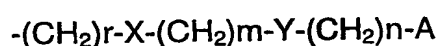
m is an integer selected from 1 and 2;

n is an integer selected from 0 and 1;

moreover the nitrogen atom to which R<sub>3</sub> is bound can be present  
in the N-oxide form.

5

- 6) A compound according to claim 5 in which R<sub>3</sub> is a methyl, a benzyl or a chain of formula



in which

10

A is a hydrogen atom, a phenyl or a heteroaryl selected from thiophene, furan, imidazole, thiazole, pyridine and triazole;

X is NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

Y, when n is 0, is a C<sub>6</sub>H<sub>4</sub> group or a heteroaryl selected from thiophene, furan, imidazole, thiazole, pyridine and triazole; or,

15

when n is 1, it is NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

r is 3;

m is an integer selected from 1 and 2;

n is an integer selected from 0 and 1;

moreover the nitrogen atom to which R<sub>3</sub> is bound can be present  
in the N-oxide form.

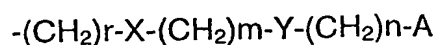
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- 7) A compound according to claim 1, in which R<sub>1</sub> is a hydrogen atom, an N-methyl-N-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino group, an N-methyl-N-(C<sub>1</sub>-C<sub>3</sub>)-alkylamino-N-oxide group, an N-(C<sub>1</sub>-C<sub>4</sub>)-acyl-N-methylamino group or R<sub>1</sub> together with R<sub>2</sub> forms a bond between the carbon atoms at 3' and 4';

25

at the same time R<sub>3</sub> is a linear or branched (C<sub>1</sub>-C<sub>3</sub>) alkyl, a benzyl optionally substituted with one or two substituents selected from nitro, hydroxy, carboxy, amino, linear or branched (C<sub>1</sub>-C<sub>3</sub>) alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy and cyano groups or a chain of formula

30



in which

A is a hydrogen atom, a phenyl or a heteroaryl with five or six members containing from one to three atoms selected from nitrogen, oxygen and sulfur;

5 X is O or NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom, a linear or branched C<sub>1</sub>-C<sub>3</sub> alkyl;

Y, when n is 0, is a C<sub>6</sub>H<sub>4</sub> group or a heteroaryl with five or six members containing from one to three atoms selected from nitrogen, oxygen and sulfur; or, when n is different from 0, it is O  
10 or NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom, a linear or branched C<sub>1</sub>-C<sub>3</sub> alkyl;

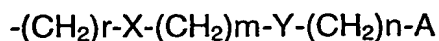
r is an integer of from 1 to 3;

m is an integer selected from 1 and 2;

n is an integer of from 0 to 2;

15 moreover the nitrogen atom to which R<sub>3</sub> is bound can be present in the N-oxide form.

8) A compound according to claim 7 in which R<sub>3</sub> is a methyl, a benzyl or a chain of formula



20 in which

A is a hydrogen atom, a phenyl or a heteroaryl with five or six members selected from pyrrole, thiophene, furan, imidazole, oxazole, thiazole, pyridine, pyrimidine, triazole and thiadiazole;

X is O or NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

25 Y, when n is 0, is a C<sub>6</sub>H<sub>4</sub> group or a heteroaryl with five or six members selected from pyrrole, thiophene, furan, imidazole, oxazole, thiazole, pyridine, pyrimidine, triazole and thiadiazole; or, when n is 1, it is NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

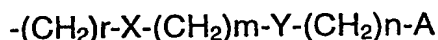
r is an integer of from 1 to 3;

30 m is an integer selected from 1 and 2;

n is an integer selected from 0 and 1;

moreover the nitrogen atom to which R<sub>3</sub> is bound can be present in the N-oxide form.

- 9) A compound according to claim 8 in which R<sub>3</sub> is a methyl, a benzyl or a chain of formula



in which

A is a hydrogen atom, a phenyl or a heteroaryl selected from thiophene, furan, imidazole, thiazole, pyridine and triazole;

X is NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

Y, when n is 0, is a C<sub>6</sub>H<sub>4</sub> group or a heteroaryl selected from thiophene, furan, imidazole, thiazole, pyridine and triazole; or, when n is 1, it is NR<sub>6</sub> and R<sub>6</sub> is a hydrogen atom;

r is 3;

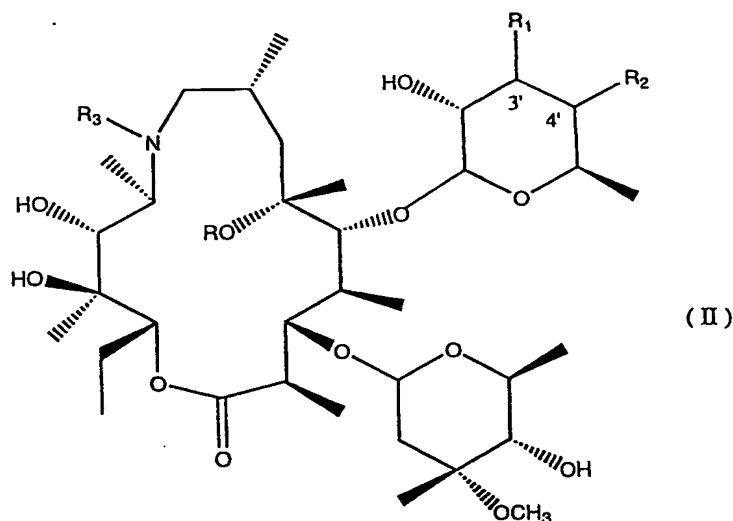
m is an integer selected from 1 and 2;

n is an integer selected from 0 and 1;

moreover the nitrogen atom to which R<sub>3</sub> is bound can be present in the N-oxide form.

- 10) A compound according to claim 9 in which R<sub>1</sub> is a hydrogen atom, an N,N-dimethylamino group, an N,N-dimethylamino-N-oxide group, an N-acetyl-N-methylamino group or R<sub>1</sub> together with R<sub>2</sub> forms a bond between the carbon atoms at 3' and 4'.

- 11) A process for preparing a compound according to claim 1 that comprises the removal of the L-cladinose at position 3, through a reaction of hydrolysis, from the azithromycin derivatives of formula



in which

R, R<sub>1</sub>, R<sub>2</sub> and R<sub>3</sub> are defined as in claim 1.

- 5 12) A process according to claim 11 in which, in formula II, the substituent R<sub>3</sub> is a methyl.
- 13) A process according to claim 11 in which the removal of cladinose is effected through a reaction of catalyzed acid hydrolysis in the presence of an inorganic acid and a protic organic solvent.
- 10 14) A pharmaceutical composition containing a therapeutically effective quantity of a compound according to claim 1 mixed with a pharmaceutically acceptable vehicle.
- 15 15) A pharmaceutical composition according to claim 14 that can be used for treating inflammatory pathologies.
- 16) A pharmaceutical composition according to claim 14 that can be used for treating respiratory pathologies.